

In re: Bigolin  
Int.'l Appl. No.: PCT/IB2004/003224  
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Amendments to the Claims:

1. (Currently Amended) A viscoelastic support structure with improved energy absorption ~~properties~~ comprising a ~~rigid or semirigid~~ frame (3), at least one layer (4) ~~made of~~ a resilient filler layer, a flexible covering (6) having a contact surface of for contact (2) with the a user, at least one gel insert (5) interposed between said covering (6) and said frame (3) ~~to interact therewith when the user exerts a stress (P) thereon, characterized in that, and a~~ plurality of protuberances (9) ~~and/or recesses (10) is provided on at least one of said insert, (5) and/or said frame, (3) and/or said covering (6), said protuberances or recesses being aligned~~ with respect to a mid-surface line extending at least partially along the length of said structure (M), said insert ~~being conformed to facilitate the deformation of said insert (5), in a direction transverse to the direction (L) of stress (P), and/or essentially parallel to said mid-surface (M), to increase the energy that said insert (5) is able to dissipate.~~

2. (Currently Amended) A structure as claimed in claim 1, wherein said insert comprises a top surface and a bottom surface, and ~~characterized in that~~ wherein said protuberances (9) ~~and/or said recesses (10) are provided on at least one of said top surface and said bottom surface (7, 7') of said insert (5).~~

3. (Currently Amended) A structure as claimed in claim 1, wherein said frame comprises a top surface facing toward said insert, and ~~wherein~~ characterized in that said protuberances (9) ~~and/or said recesses (10) are provided~~ on a said top surface (8) of said frame (3), said top surface (8) facing toward said insert (5).

4. (Currently Amended) A structure as claimed in claim 1, wherein said flexible covering further comprises a bottom surface facing toward said insert, and ~~wherein~~ characterized in that said protuberances (9) ~~and/or said recesses (10) are provided on a said bottom surface (6') of said flexible covering (6), said bottom surface (6') facing toward said insert (5).~~

5. (Currently Amended) A structure as claimed in claim 1, wherein~~characterized in~~ that said protuberances-(9) have top surfaces-(11) mainly extending along respective first lines.

6. (Currently Amended) A structure as claimed in claim 5, wherein~~characterized in~~ that said recesses-(10) have bottom surfaces-(12) mainly extending along respective second lines.

7. (Currently Amended) A structure as claimed in claim 6, wherein~~characterized in~~ that said first and second-extension lines are curved ~~and/or straight~~.

8. (Currently Amended) A structure as claimed in claim 6, wherein~~characterized in~~ that said protuberances (9) ~~and/or~~ recesses-(10) have inclined surfaces-(13) for connecting said top surfaces-(11) and said bottom surfaces-(12), said inclined surfaces having with respective inclination angles-(A) relative to said mid-surface line~~(M)~~.

9. (Currently Amended) A structure as claimed in claim 8, wherein~~characterized in~~ that said inclination angles-(A) ~~are of~~ are from 5° to 85° ~~and preferably of about 45°~~.

10. (Currently Amended) A structure as claimed in claim 1, wherein~~characterized in~~ that said filler layer-(4) ~~has~~ comprises an enlarged rear portion-(14) ~~for supporting the buttocks of a user,~~ a front horn portion, -(15) and a central portion-(16), wherein at least one of said central portion-(16) ~~and/or~~ said rear portion-(14) having comprise at least one through cavity-(17).

11. (Currently Amended) A structure as claimed in claim 10, wherein~~characterized in~~ that said at least one through cavity ~~of~~ is present in said rear portion-(14) and is positioned ~~placed at~~ in an area generally corresponding to the ischial bones of the user.

12. (Currently Amended) A structure as claimed in claim 10, wherein~~characterized in that said through cavity is present in at least one of said central portion and said rear portion, and said insert-(5) is received in said through cavity-(17) of said central portion-(16) and/or said rear portion-(14).~~

13. (Currently Amended) A structure as claimed in claim 12, wherein~~characterized in that said insert-(5) extends from said frame-(3) to said flexible covering-(6).~~

14. (Currently Amended) A structure as claimed in claim 1, wherein~~characterized in that said gel insert comprises a gel material that is essentially optically transparent.~~

15. (Currently Amended) A structure as claimed in claim 1, wherein~~characterized in that said flexible covering-(6) has~~ comprises at least one essentially optically transparent portion-(18).

16. (Currently Amended) A structure as claimed in claim 15, wherein~~characterized in that said transparent portion-(18) of said flexible covering-(6) is located above said insert-(5).~~

17. (Currently Amended) A structure as claimed in claim 15, wherein~~characterized in that said transparent portion-(18) of said covering-(6) is a separate~~ comprises a portion separate from said covering, said portion being connected to the rest of said flexible covering (6) by suitable connection means.

18. (Currently Amended) A structure as claimed in claim 15, wherein~~characterized in that said transparent portion-(18) is integral with the rest of said flexible covering-(6).~~

19. (Currently Amended) A structure as claimed in claim 1, wherein~~characterized in that the base material of said frame~~ comprises a polymeric base material, (3) is polymeric and that is essentially optically transparent to permit the passage of light through said covering (6), said gel insert (5) and said frame (3).

20. (Currently Amended) A structure as claimed in claim 19, ~~wherein characterized in that the base material of said frame (3) is~~ comprises a ligneous, metal or composite material; ~~said frame (3) having at least one through hole, which is covered by a polymeric and essentially optically transparent layer.~~

21. (New) A structure as claimed in claim 1, wherein said insert is adapted for deformation in a direction transverse to the direction of a stress applied to said insert.

22. (New) A structure as claimed in claim 1, wherein said insert is adapted for deformation in a direct essentially parallel to said mid-surface line.

23. (New) A structure as claimed in claim 1, wherein said insert is adapted for deformation in one or more directions thereby increasing energy dissipation by said insert.

24. (New) A structure as claimed in claim 6, wherein said first and second lines are straight.

25. (New) A structure as claimed in claim 8, wherein said inclination angles are about 45°.

26. (New) A structure as claimed in claim 1, wherein said frame comprises at least one through hole covered by a polymeric layer that is essentially optically transparent.